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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,038	07/01/2003	Kazunori Yamada	9475/0M772US0	5838
7278	7590	12/17/2003	EXAMINER	
DARBY & DARBY P.C. P. O. BOX 5257 NEW YORK, NY 10150-5257			FRIEDHOFER, MICHAEL A	
			ART UNIT	PAPER NUMBER
			2832	

DATE MAILED: 12/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/612,038

Applicant(s)

YAMADA, KAZUNORI

Examiner

Michael A. Friedhofer

Art Unit

2832

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 13-18 is/are rejected.
- 7) ☒ Claim(s) 10-12, 19 and 20 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bredow et al in view of Kawaguchi et al and Yanni et al.

Bredow et al discloses in figures 1-2 a double action push switch including housing 60; fixed contact points 71-74; a first plate member 20; a second plate member 30 side by side with the first plate member both bulging away from the inner bottom face of the cavity; and a key top 10 having an operating portion 10 being pressed for a double action switching operation. First pressing portion 50a and second pressing portion 50b are formed on the key top and respectively press the centers of the first and second plate members for causing an inversion thereof. The operating portion is located such that a first operating load on the operating portion, when a pressing point of the first pressing portion of the first plate member is acting as a fulcrum and moments on the key top are balanced, is not equal to a second operating load on the operating portion when the pressing point of the second pressing portion on the second plate member is acting as a fulcrum and moments on the key top are balanced. The first pressing force applied to the operating portion causes the inversion of the center of one of

the two plate members for achieving a first electrical connection, and a second pressing force applied to the operating portion causes the inversion of the center of the other one of the plate members for achieving a second electrical connection. The first and second plate members have different load characteristics in which the loads are applied on a point coinciding with a mid point between the pressing points of the first and second pressing portions of the plate members.

Bredow et al does not disclose there being three terminals in which the two plate members have peripheral portions which abut a common one of the contact points of the terminals.

Kawaguchi et al teaches a tact switch in which there are three contact points with a common contact point shared between the double switch actuating operations.

Yanai et al teaches a tact switch with a peripheral of the dome contacting fixed contact 23 and the center engaging the contact 22. The terminals of the fixed contacts protrude side by side from the housing in a direction substantially the same as a direction in which the operating portion of the key top is pressed. The housing includes stoppers 25 which abut a substrate face at an edge portion of a recess 32 of a printed circuit board 31 to which the housing is mounted.

It would have been obvious to one of ordinary skill in the art to apply the teachings of Yanai et al and Kawaguchi et al to form the switch as having three terminals with a common contact point of one of the terminals engaging the

peripheries of the domes with the housing forming stoppers for mounting a periphery within a recess of the printed circuit board because the placement of the terminals and domes reduces the number of parts and difficulty in placement within the switch for accurate operation while the mounting of the switch on the substrate via the stoppers in the recess reduces the overall size of the device utilizing the switch.

3. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bredow et al in view of Yanai et al and Kawaguchi et al as applied to claims 1-3 above, and further in view of Lee '716.

Bredow et al as modified by Yanai et al and Kawaguchi et al teaches all of the claimed limitations with the exception of the domes have identical load characteristics with the loads being applied on a point offset from a mid point between the pressing points.

Lee '716 teaches a double action push switch in which the domes 16 have identical load characteristics with the loads being applied on points 32 and 33 offset from a mid point between the pressing points.

It would have been obvious to one of ordinary skill of the art to apply the teachings of Lee to Bredow et al as modified by Yanai et al and Kawaguchi et al to utilize domes having identical loads but the loads being applied on a point offset from a mid point between the pressing points because the purpose of creating a double action switch would not be altered and offsetting the point of

applied loads creates the difference in load characteristics for the sequential operation.

4. Claims 13, 14, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bredow et al in view of Yanai et al.

Bredow et al discloses in figures 1-2 a double action push switch including housing 60; fixed contact points 71-74; a first plate member 20; a second plate member 30 side by side with the first plate member both bulging away from the inner bottom face of the cavity; and a key top 10 having an operating portion 10 being pressed for a double action switching operation. First pressing portion 50a and second pressing portion 50b are formed on the key top and respectively press the centers of the first and second plate members for causing an inversion thereof. The operating portion is located such that a first operating load on the operating portion, when a pressing point of the first pressing portion of the first plate member is acting as a fulcrum and moments on the key top are balanced, is not equal to a second operating load on the operating portion when the pressing point of the second pressing portion on the second plate member is acting as a fulcrum and moments on the key top are balanced. The first pressing force applied to the operating portion causes the inversion of the center of one of the two plate members for achieving a first electrical connection, and a second pressing force applied to the operating portion causes the inversion of the center of the other one of the plate members for achieving a second electrical connection. The first and second plate members have different load

characteristics in which the loads are applied on a point coinciding with a mid point between the pressing points of the first and second pressing portions of the plate members. In figures 5 and 6, separate key tops are utilized for operating groups of domes.

Bredow et al does not disclose the separate key tops for the domes for operation by the outer key top with the mounting of the switches on a printed circuit board.

Yanai et al teaches a tact switch with a key top 29 for operation of dome 27 with a peripheral of the dome contacting fixed contact 23 and the center engaging the contact 22. The terminals of the fixed contacts protrude side by side from the housing in a direction substantially the same as a direction in which the operating portion of the key top is pressed. The housing includes stoppers 25 which abut a substrate face at an edge portion of a recess 32 of a printed circuit board 31 to which the housing is mounted.

It would have been obvious to one of ordinary skill in the art to apply the teachings of Yanai et al to form each dome as having separate key tops for operation of an outer key top with the housing forming stoppers for mounting a periphery within a recess of the printed circuit board because this is for the purpose of modularization providing easier assembly and replacement of the various elements within the switch.

Allowable Subject Matter

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5. Claims 10-12 and 19-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

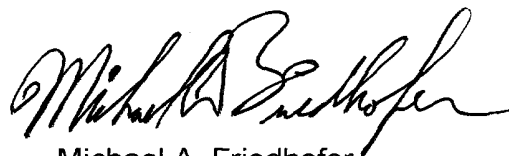
6. The following is a statement of reasons for the indication of allowable subject matter: The prior art does not teach or suggest a double action push switch in which the domes have different load characteristics with the loads being applied on a point offset from a mid point between the pressing points of the pressing portions.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Malone, Ando, and Lee '361 teach various double action push switch structures.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Friedhofer whose telephone number is 703-308-3304. The examiner can normally be reached on Mon-Fri 6:00 - 2:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin Enad can be reached on 703-308-7619. The fax phone number for the organization where this application or proceeding is assigned is 703-305-3432.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1782.



Michael A. Friedhofer
Primary Examiner
Art Unit 2832

maf